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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
PLANTE, JONATHAN R	
ART UNIT	PAPER NUMBER
2112	

DATE MAILED: 10/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/710,526	HUSEN ET AL.	
	Examiner	Art Unit	
	Jonathan R. Plante	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07/19/2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/21/2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The instant application having Application Number 10/710,526 has a total of 11 claims pending in the application; there are 2 independent claims and 9 dependent claims, all of which are ready for examination by the examiner.

Oath/Declaration

2. The applicant's oath/declaration has been reviewed by the examiner and is found to conform to requirements prescribed in **37 C.F.R. 1.63**.

Drawings

3. Updated drawings were received on September 21, 2004. These replacement drawings are acceptable for examination of the application.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: "FIG. 2, 34 '3D DISPLAY (I.E. PRESSURE, LIQUID, DROPOUT)'". The specifications read "3D display may be generated as indicated at 32" (Paragraph 0046). For purpose of examination it will be interpreted by the examiner that the specifications should read "3D display may be generated as indicated at 34". Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any

amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it exceeds the word limit of 150 the provided abstract (07/19/2004) contains 184 words. Correction is required.

See MPEP § 608.01(b).

Claim Objections

5. Claims 1 and 8 are objected to because of the following informalities:

Claim 1 (Line 2) after "**comprising**" please insert -- **:** --

Claim 1 please correct indexing of claim subsections; application is doubled indexed with the usage of "d." on Lines 9 and Line 11

Claim 1 (Line 15) after "**model;**" please insert -- and --

Claim 8 (Line 8) after "**performance;**" please insert -- and --

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. Claims 1, 9, 10, and 11 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "predicted performance data" in Line 18. There is insufficient antecedent basis for this limitation in the claim. Even though "predicted performance" (Line 11) has been previously recited, there is no mention of "predicted performance data". It is the recommendation that applicant insert "data" after "predicted performance" (Line 11).

Claim 1 recites the limitation "calculated performance data" in Line 14. There is insufficient antecedent basis for this limitation in the claim. The usage of "calculated performance data" is indefinite in that "calculated performance data" can refer to both "actual" (Line 13) or "predicted" (Line 11) performance data. It is the recommendation that the applicant insert "predicted" after "calculated" (Line 14). For purpose of examination it will be interpreted that applicant is referring to "predicted performance data" (Line 11).

Claim 9 recites the limitation "the fluid parameters" in Line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 10 recites the limitation "predicted and actual performance data" in Line 2. There is insufficient antecedent basis for this limitation in the claim. Even though "performance prediction" (Claim 8, Line 5) and "actual performance" (Claim 8, Line 7) have been previously recited, there is no mention of "performance prediction data" or "actual performance data". It is the recommendation that the applicant insert "data" following "performance prediction" (Claim 8, Line 5), "performance prediction" (Claim 8, Line 7), "actual performance" (Claim 8, Line 7), "performance prediction" (Claim 8, Line 9), and "actual performance" (Claim 8, Line 10).

Regarding claim 10, the phrase "may then be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed

invention. See MPEP § 2173.05(d). It is the recommendation that the applicant replace "may then be" (Line 4) with "is".

Regarding claim 11, the phrase "may be" renders the claim indefinite because it is unclear whether the limitations following the phrase are part of the claimed invention. See MPEP § 2173.05(d). It is the recommendation that the applicant replace "may be" (Line 1) with "is".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

8. Claims 1-11 are rejected under 35 U.S.C. 102(a) as being anticipated by Roggero et al. (US Patent 6,662,109 B2 December 9, 2003).

As per claim 1, Roggero et al. discloses, "a base model" **[The simulation model is preferably first calibrated (Column 8, Line 42)]** "b. an input device for inputting well logging data into the base model;" **["allows updating by the dynamic production**

data, a fine geological model representative of the distribution in the reservoir of a physical quantity characteristic of the subsoil structure (the permeability or the porosity of the reservoir rocks for example)" (Column 8, Line 8) and "**dynamic data are for example production data such as the pressure, the gas-oil ration (GOR) or the fraction of water in the oil" (Column 8, Line 60)]** "c. an input device for inputting pressure transient data into the base model;" **["dynamic data are for example production data such as the pressure, the gas-oil ration (GOR) or the fraction of water in the oil" (Column 8, Line 60)]** d. an input device for inputting PVT data into the base model" **["allows updating by the dynamic production data, a fine geological model representative of the distribution in the reservoir of a physical quantity characteristic of the subsoil structure (the permeability or the porosity of the reservoir rocks for example)" (Column 8, Line 8)** and "**dynamic data are for example production data such as the pressure, the gas-oil ration (GOR) or the fraction of water in the oil" (Column 8, Line 60)]** d. a numerical interpreter for calculating predicted performance of the well **[parameters of the simulation model are adjusted, this model can be used to simulate the present and future behavior of the reservoir (Column 2, Line 15)]** "e. a match system for comparing actual performance data with calculated performance data based on the base model" **[an objective function which measures the difference between the dynamic data observed in the field and the simulation results obtained for a set value of parameters θ (Column 4, Line 30)]** "f. a reiterative loop for modifying the base model to provide a match between the actual performance data and the predicted performance

data to optimize the base model" **[constrained reservoir characterization is to determine the parameters of the simulation model so that the latter can reproduce the production data of the reservoir to be modeled. This parameter estimation stage is also referred to as production data fitting. The flow simulation model is thus compatible with all of the available static and dynamic data (Column 1, Line 61)].**

As per claim 2 Roggero et al. discloses, "including a data editing module for editing the pressure transient data before it is input into the base model" **[as the parameters of the simulation model are adjusted, this model can be used to simulate the present and future behavior of the reservoir (Column 2, Line 16)].**

As per claim 3, Roggero et al. discloses, "a plotting device for plotting the data generated by the system" **[Figures 4 – 7, 10-16, 18-20].**

As per claim 4, Roggero et al. discloses, "plotting device is adapted for plotting line fitting on specialized plots" **[FIGS. 19A to 19E show comparison between the pressure data and the simulation results after fitting (Column 10, Line 7)].**

As per claim 5, Roggero et al. discloses, "plotting device is adapted for plotting specialized plots providing preliminary estimates of performance data based on the base model" **[FIG. 13 shows an initial geostatistical model (Column 9, Line 61)].**

As per claim 6, Roggero et al. discloses, "plotting device is adapted for generating a 3D display of the well" **[FIG. 16 shows a constrained geostatistical model (Column 10, Line 1)]**.

As per claim 7, Roggero et al. discloses, "plotting device is adapted for generating performance data plots based on the optimized model" **[FIG. 4 shows the derivatives of the simulation results in relation to the parameterization of the geostatistical model (Column 9, Line 43)]**.

Claim 8 is rejected using the same rationale as per the rejection of claim 1.

As per claim 9, Roggero et al. discloses, "wherein the PVT data includes non-Darcy factors effecting the fluid parameters in the well." **[fine geological model, representative of the distribution, in the reservoir, of a physical quantity characteristic of the subsoil structure. (Abstract, Line 2)]**.

As per claim 10, Roggero et al. discloses, "optimized model is generated by comparing predicted and actual performance data for a first, known zone" **[rejected using the same rationale as per the rejection of claim 1]** "optimized model may then be utilized to predict performance data for an unknown zone" **[Characterizing a well during operations relating to creating or operating the well can provide various**

information about what is downhole in the well or adjacent subterranean formations. This information may be used in performing the operation(s) on the respective well, or it may be useful in planning or conducting operations on other wells. (0016)].

As per claim 11, Roggero et al. discloses, " repeatedly optimized as actual performance data for multiple zones is collect" **[A flow simulation is carried out for a 42-day period on the reference geostatistical model. The synthetic pressure history (FIG. 12) is defined from the results of this reference simulation by the production well bottomhole pressure, its derivative in relation to time and the bottomhole pressure of the four observation wells (Column 15, Line 62)]**.

Conclusion

9. In addition to reference used under 35 U.S.C. 102, additional prior art references that disclose relevant subject matter on the merits can be found in "**METHOD FOR PREDICTING, BY MEANS OF AN INVERSION TECHNIQUE, THE EVOLUTION OF THE PRODUCTION OF AN UNDERGROUND RESERVOIR**" Guerillot et al. (US Patent 5,764515 June 9, 1998) and "**METHOD FOR MODELLING FLUID FLOWS IN A FRACTURED MULTILAYER POROUS MEDIUM AND CORRELATIVE INTERACTIONS IN A PRODUCTION WELL**" Sarda (US Patent 6,842,725 B1 January 11, 2005).

Guerillot et al. discloses as prior art:

a. Base model (Column 4, Line 45)

b. Predicted performance (Column 4, Line 53)

c. Model is optimized to match measured parameter history (Column 4, Line 58)

d. Generation of future predictions based on optimized model (Column 4, Line 65)

e. Editing and inputting of model parameters (Column 2, Line 12 and Column 6, Line 30)

f. Type of input data (Column 1, Line 46 and 57)

g. Plotting and Graphing simulation results (FIG. 1-7)

Sarda discloses as prior art:

a. Defining the Well (FIG. 5)

b. Data input i.e. pressure (Column 8, Line 2)

c. Data input i.e. PVT (Column 8, Line 35)

d. Calculating prediction/simulation (Column 7, Line 54)

e. Optimization of model (Column 9, Line 20)

10. The examiner requests, in response to this Office action, support be shown for language added to any original claims on amendment and any new claims. That is, indicate support for newly added claim language by specifically pointing to page(s) and

line number(s) in the specification and/or drawing figure(s). This will assist the examiner in prosecuting the application.

When responding to this office action, Applicant is advised to clearly point out the patentable novelty which he or she thinks the claims present, in view of the state of the art disclosed by the references cited or the objections made. He or she must also show how the amendments avoid such references or objections See 37 CFR 1.111(c).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan R. Plante whose telephone number is (571) 272-9780. The examiner can normally be reached on Monday through Friday 9:00 AM to 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pierre M. Vital can be reached on (571) 272-4215. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

October 10, 2006

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